

**Westinghouse**  
**Lighting Institute**

GRAND CENTRAL PALACE, NEW YORK

GENERAL ILLUMINATION COURSE

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DISPLAY LIGHTING



WESTINGHOUSE LAMP COMPANY

ENGINEERING AND TECHNICAL DATA PREPARED  
BY THE COMMERCIAL ENGINEERING DEPT. OF THE  
WESTINGHOUSE LAMP CO., BLOOMFIELD, N. J.

### DISPLAY LIGHTING

Merchandise should be displayed to its best possible advantage. It should also be seen by the greatest possible number of people. Light will aid in accomplishing both of these results. It enhances the appearance of the merchandise and attracts the passerby to it.

An effective display should be so lighted that it will stand out in contrast to its surroundings. In illuminating displays, light sources and lighting equipment should be carefully concealed from view.

Modern show windows, show cases and wall cases each have approximately the same general proportions and may utilize standardized lighting installations. It is possible to give simple and definite recommendations, thus making elaborate or complicated calculations unnecessary. Various types of reflecting equipment insuring efficient utilization of the light and giving satisfactory results are commercially available.

#### Show Window Lighting

Merchants endeavor to locate their stores on not only the busiest streets but also on the busiest side of the street. This is done so that the greatest possible number of people may see the merchandise. Investments in window space are only justified by properly illuminating the merchandise as long as pedestrians are on the street to see it. This may be done even after the store is closed. Automatic time switches will turn the lights off at any desired hour.

Daylight, especially bright sunshine, often produces reflections in polished plate glass fronts of show windows that detract from and even obscure the merchandise on display. It, therefore, is not only necessary to make use of the lighting equipment during the day but in some cases to provide additional equipment of higher intensity.

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Since displays should stand out in contrast to their surroundings the intensity of illumination required in any particular window will depend upon the brightness of the locality in which it is situated. The following table gives recommendations for the wattages of lamps and spacings of outlets for show windows on main and side streets in cities of different sizes. These recommendations are for night illumination and can be appropriately supplemented by spot lighting, flood lighting and footlights.

SPACING OF REFLECTORS AND SIZE OF LAMPS  
FOR SHOW WINDOW ILLUMINATION

Population of City or Town	Location of Store	Spacing of Reflectors (Inches)	Size of Mazda Lamps (Watts)
5000 or less	Main Streets	15	150
	Side Streets	18	150
5000 to 50000	Main Streets	12	150 - 200
	Side Streets	15	150
Above 50000	Super White Way	15	500
	Metro. Dist.	12	200
	Main Streets	12	150 - 200
	Side Streets	12	150

Results of independently conducted investigations all point to the same general conclusion, that increased intensities of light increase the pulling power of windows. More people will stop to view a well illuminated display, the number varying almost directly with the amount of light provided.

Show window illumination must be designed so as to conceal the light sources from the vision of the spectators. Bare lamps without proper reflectors result in an inefficient use of light, unsightly shadows on the display and glare in the eyes of the passerby. The outlets should be installed in a vertical position along the front upper edge of the window. Each outlet should be equipped with either prismatic, polished metal, or mirrored glass reflectors designed for show window service.

Since displays should stand out in contrast to their surroundings the intensity of illumination required in any particular window will depend upon the brightness of the locality in which it is situated. The following table gives recommendations for the selection of lamps and spacing of reflectors for show windows on main and side streets in cities of different sizes. These recommendations are for night illumination and can be appropriately supplemented by spot lighting. Illumination and lighting.

SPACING OF REFLECTORS AND SIZE OF LAMP FOR SHOW WINDOW ILLUMINATION

Population of City or Town	Location of Store	Spacing of Reflectors (feet)	Size of Lamp (watts)
5000 or less	Main Streets	12	100
	Side Streets	14	75
5000 to 10000	Main Streets	12	150
	Side Streets	14	100
Above 10000	Super Main Sts.	12	200
	Main Sts.	12	150
	Side Streets	14	100
	Side Streets	14	75

Results of independent research investigations are given to the same general conclusion, that increased brightness of light increases the selling power of windows. Since people will stop to view well illuminated displays, the number visiting stores directly with the amount of light provided.

Show window illumination must be designed so as to bring the light sources into the vision of the spectators. First, then, proper reflectors result in an efficient use of light. Reflectors should be installed in a vertical position along the front upper edge of the window. Each outlet should be equipped with either glass, polished metal, or mirrored glass reflectors designed for show window service.

The shape of reflector used depends upon the proportions of the window and can be readily selected from the manufacturers' catalogue information.

The background of the window should be finished in light colors of a non-glossy character. Glossy surfaces cause annoying light source reflections and dark backgrounds absorb a large quantity of light. The use of warm gray, cream white and caen stone shades is considered good practice.

The equipment itself should be concealed from view by either a valance between the reflectors and the window, or by recessing the equipment in the ceiling. In corner or open back windows, the reflectors should be concealed from side or rear view by an additional valance in the rear. Where it is necessary to shield or soften the brightness of the light source, louvers or prismatic glass cover plates should be employed.

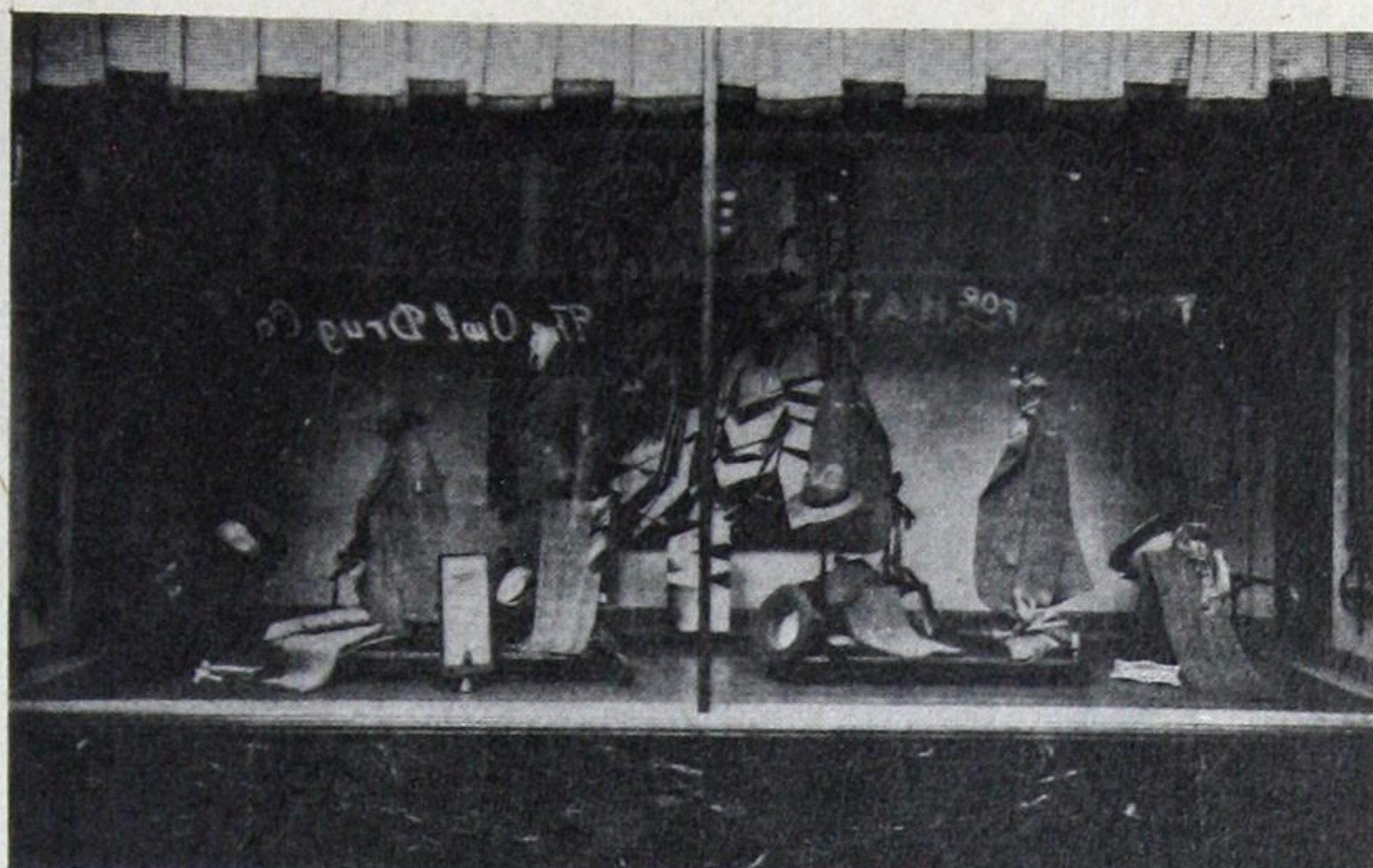
Opportunities for interesting and attention-compelling lighting effects in show windows approach theatrical possibilities. Footlights of approximately one quarter the strength of the overhead lights are used to soften any shadows. Floodlights are used to light an important part of the exhibit to an unusually high intensity. Particular objects are spot lighted in either clear or colored light to contrast with the surrounding merchandise or background. For these special effects equipment should be installed near the front corners of each window, and, if the window is large, at other strategic points. Spotlights or floodlights, like other window lighting equipment, should be provided with adapters and color filters for color emphasis.

The illustrations on page 83 show the advantages of using artificial lighting during the day. A display in an unlighted window or in one using only several spot lights for daytime illumination (top illustration) must compete with the reflections from opposite buildings, passing traffic and pedestrians. The intensity used for night lighting (center illustration) makes a decided improvement in the appearance of

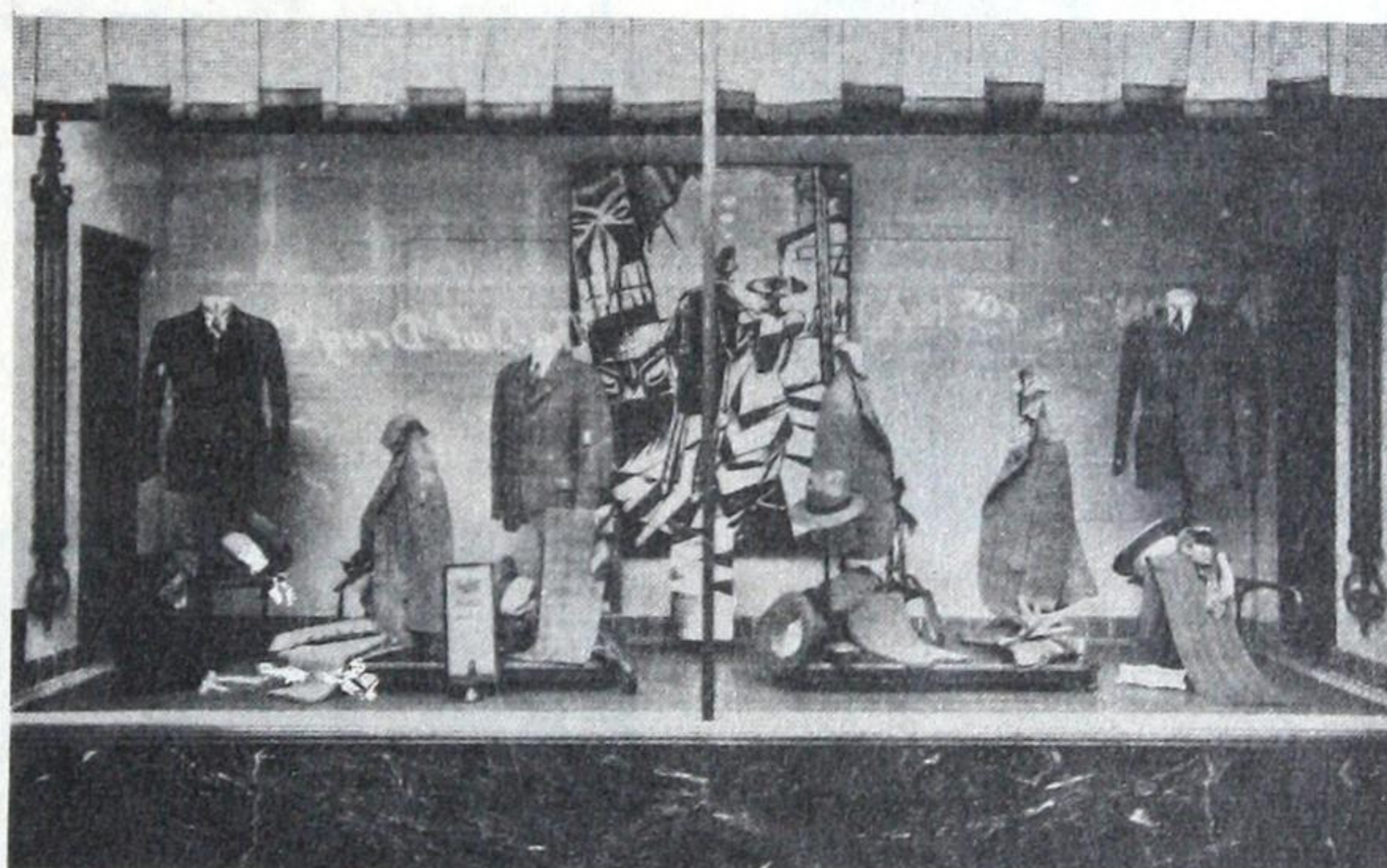
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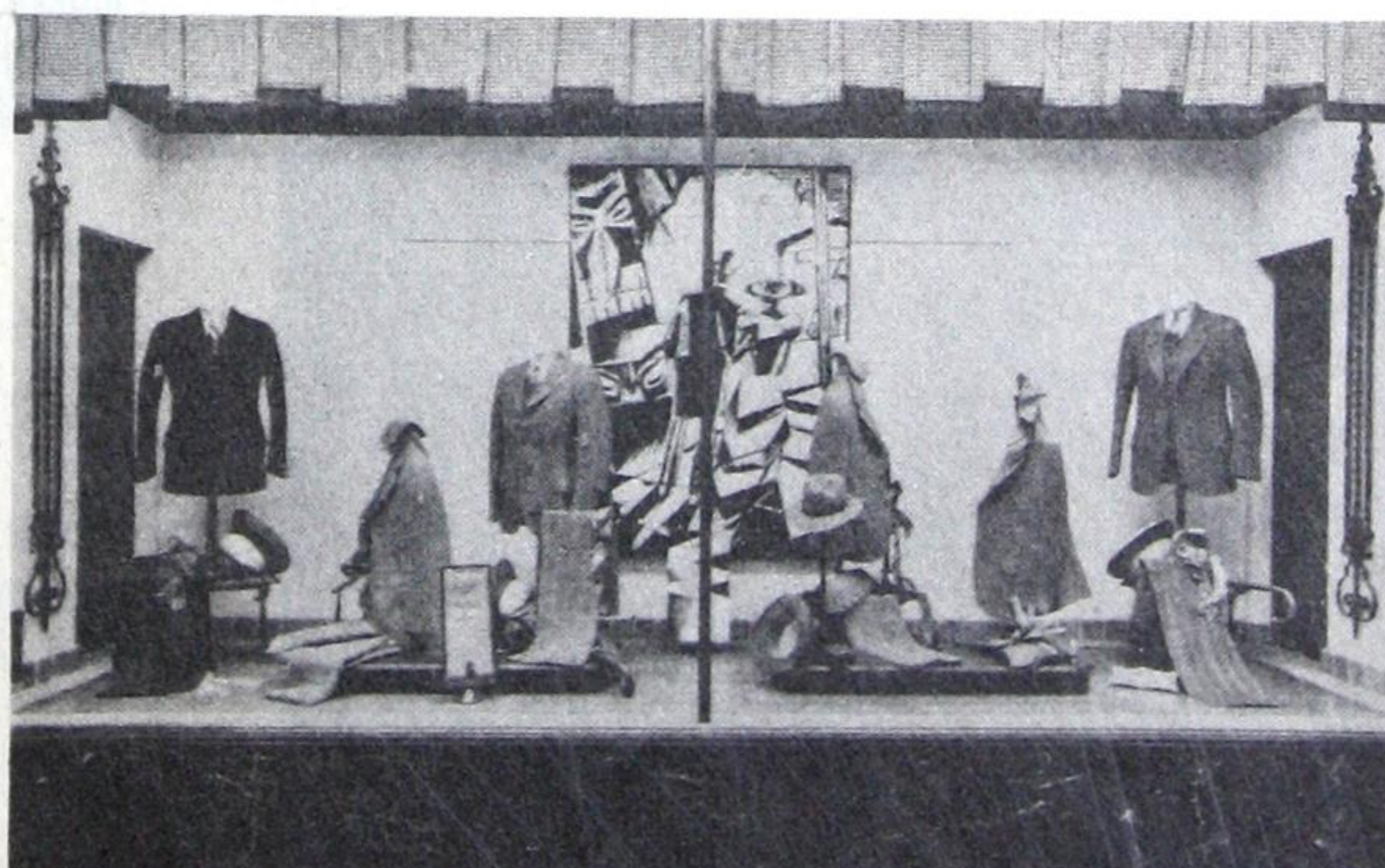
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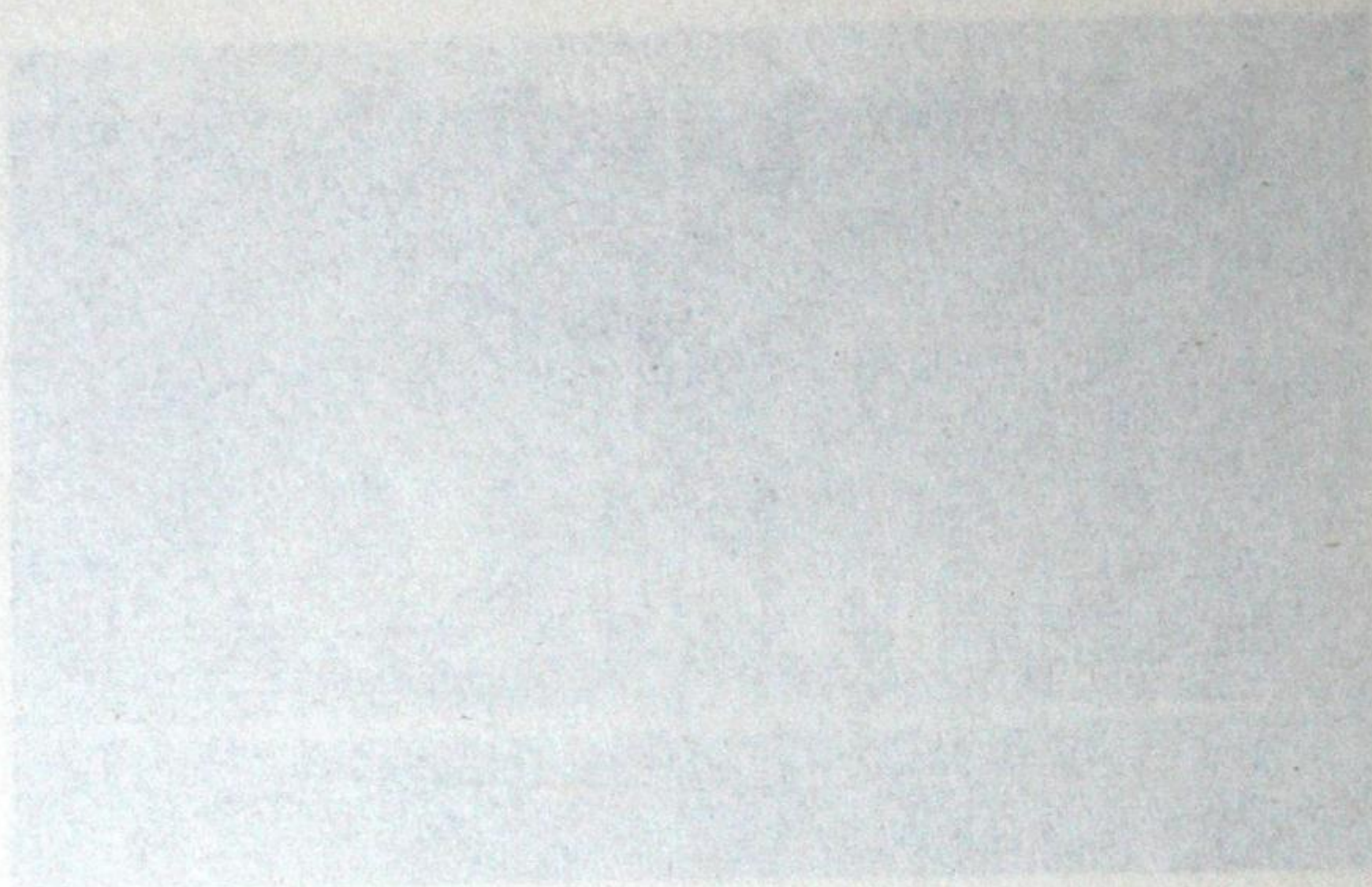
Typical daylight reflections.  
Three 200 watt spotlights only  
artificial lighting used.



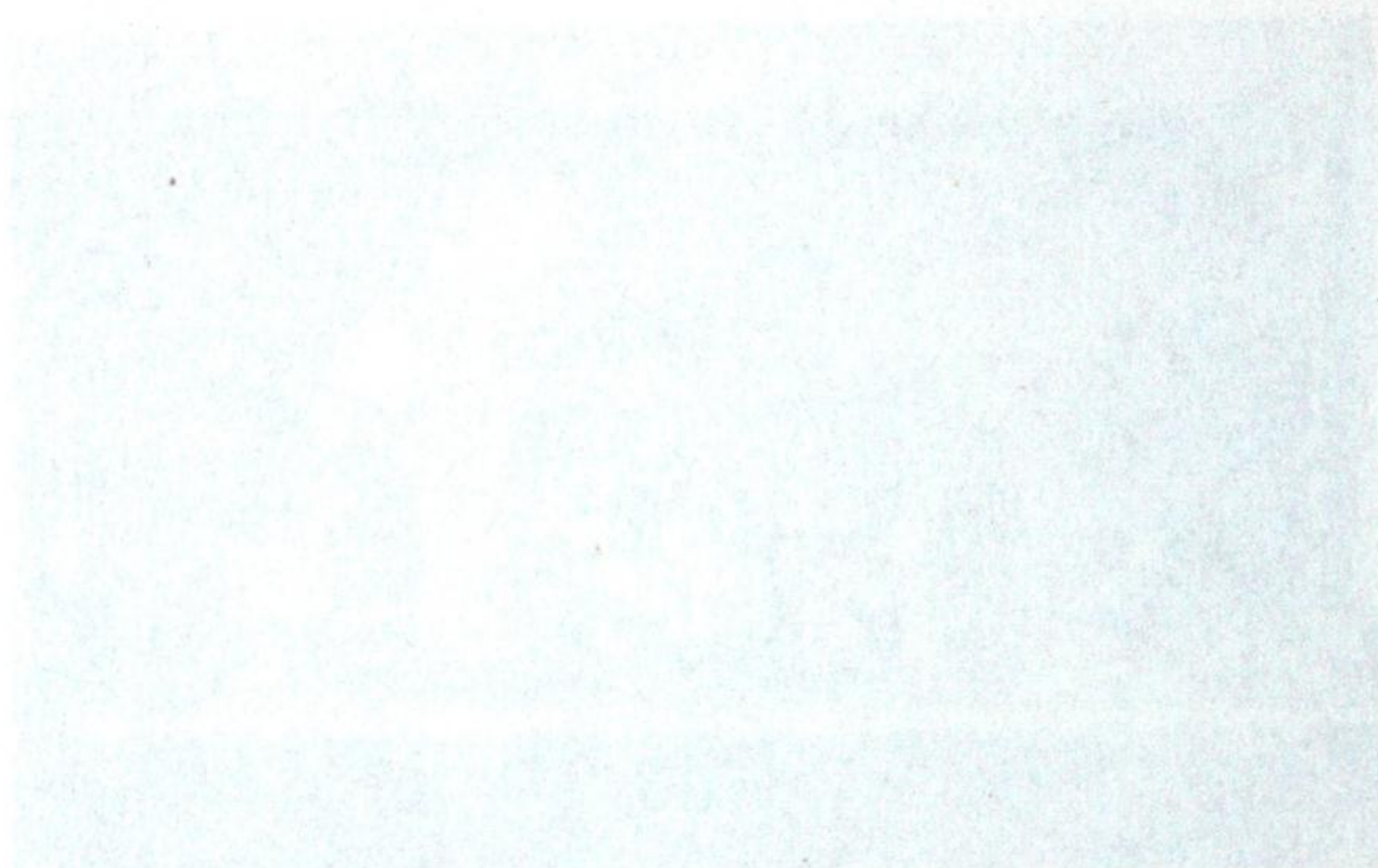
Same window. Artificial Lighting.  
Ten 200 watt lamps with mirrored glass  
reflectors on 20" centers.



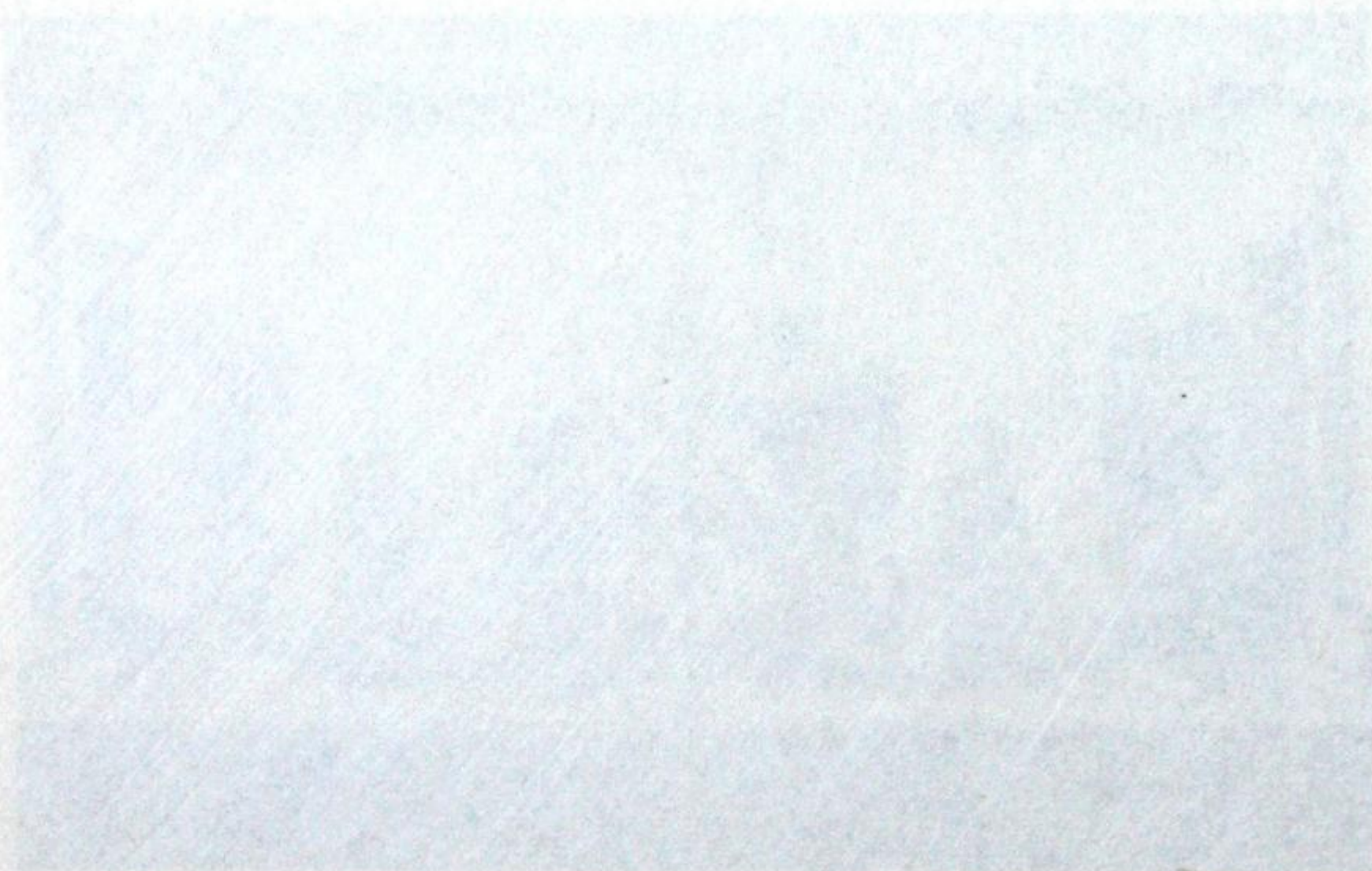
Same window. Ten 200 watt  
and nine 300 watt lamps alternated  
on 10" centers in mirrored glass  
reflectors.



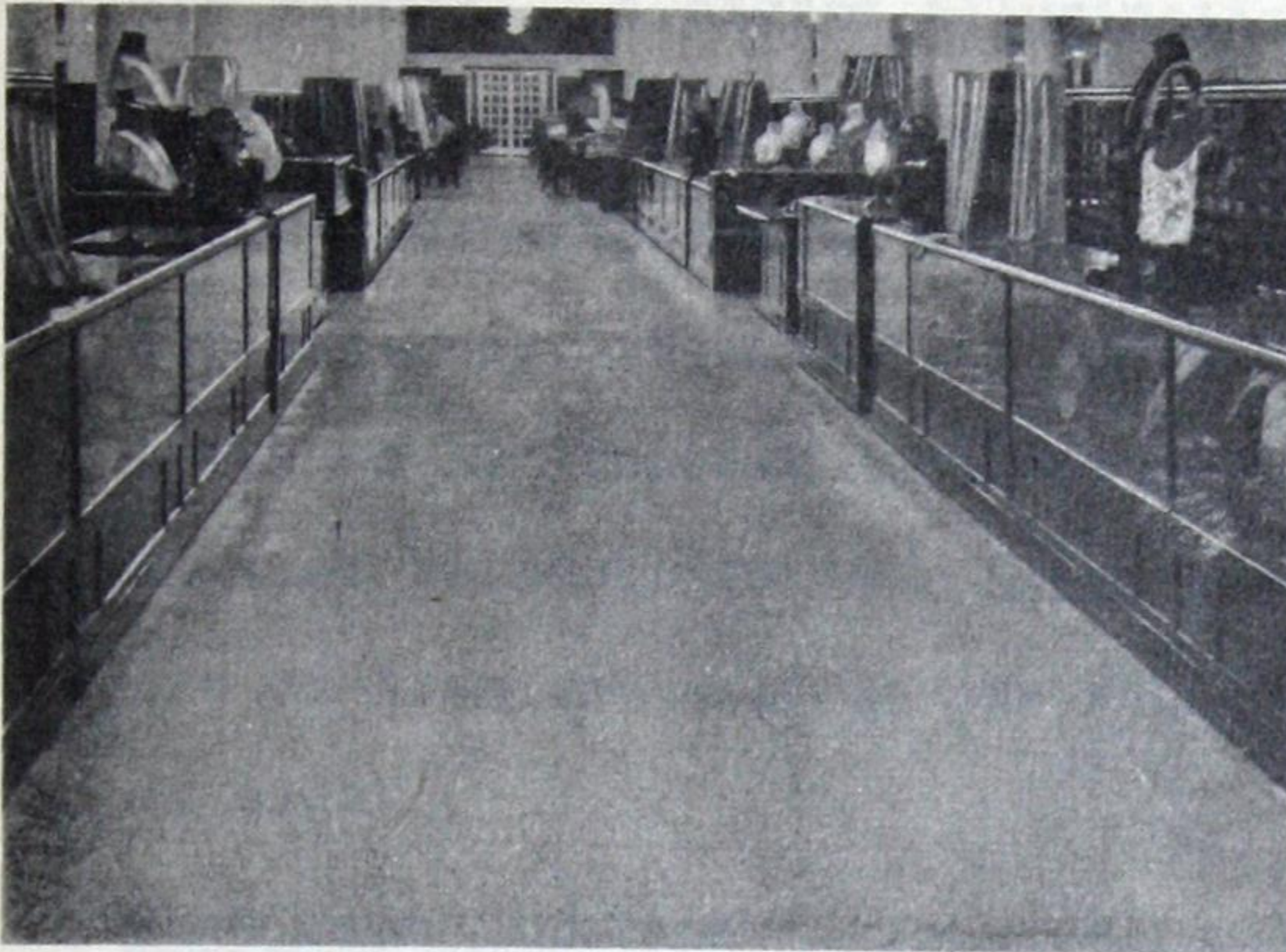
Typical ceiling reflection  
from 300 watt spotlights only  
with typical lighting level



Same as above. Additional lighting  
from 300 watt lamps at 10' from floor  
reflected on 25' ceiling



Same as above. 300 watt  
lamps at 10' from floor  
reflected on 25' ceiling  
reflected



Reflections in the glass fronts of unlighted show cases detract from and sometimes obscure the merchandise on display.

Individual reflectors of mirrored glass on 20 inch centers and equipped with 25 watt Mazda lamps aid in making an appealing display.



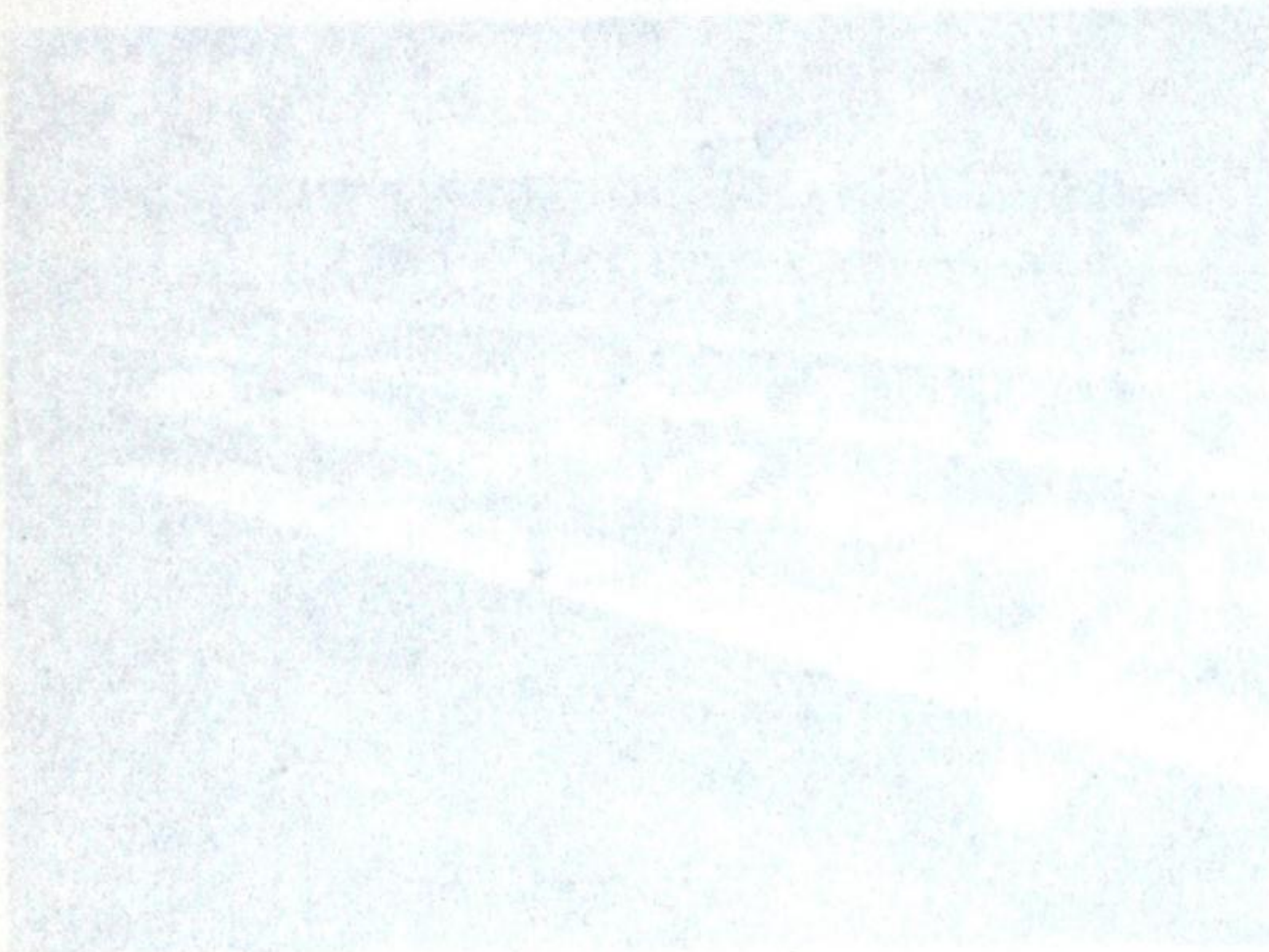
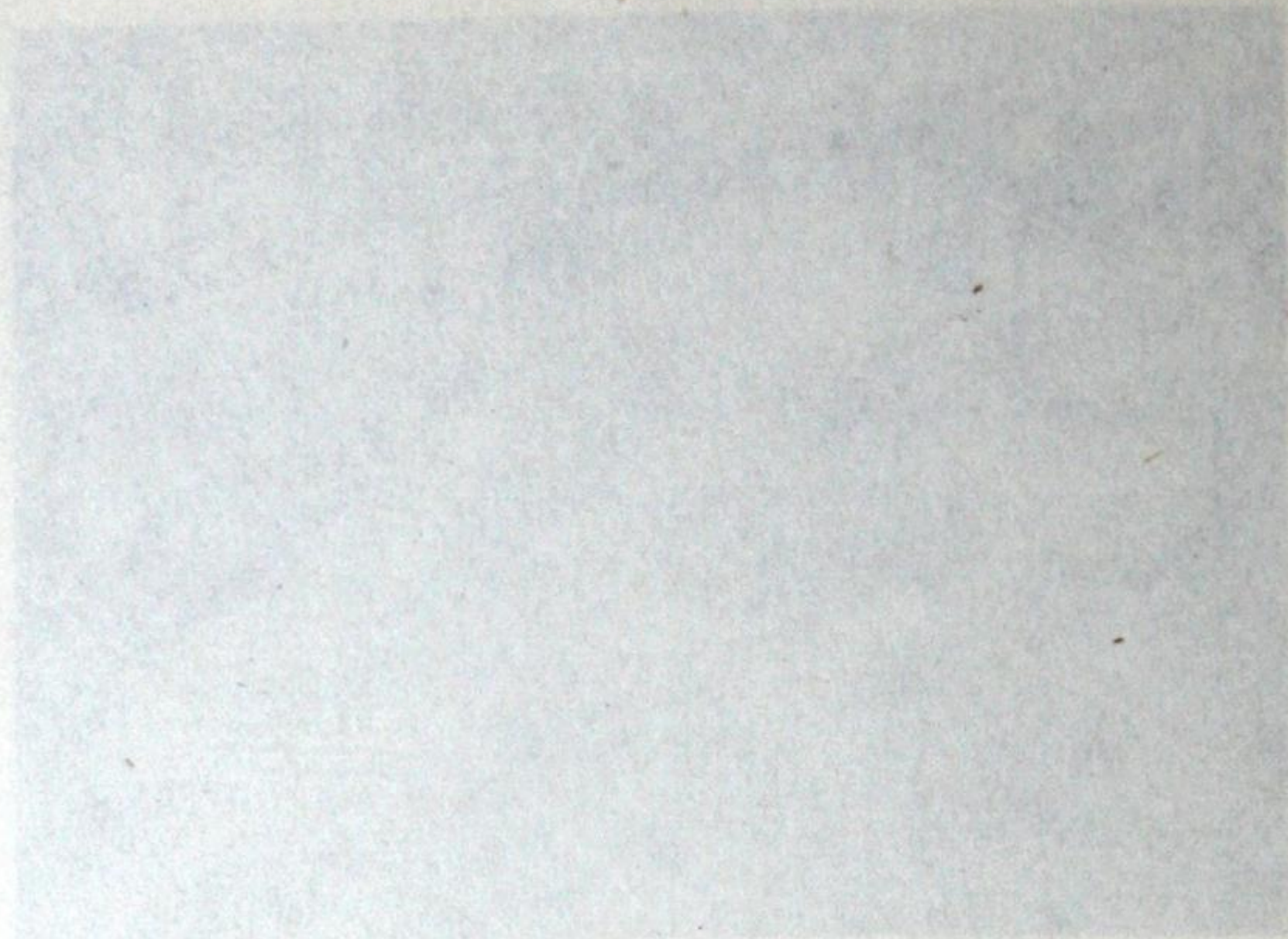
Trough reflectors with tubular Mazda show case lamps facilitate the inspection of the goods.



Diffusing glass panels in the top of this wall case illuminate the complete interior and attract attention to the merchandise on exhibit.



Reflections in the glass fronts of  
display cases cause interest from and  
disturbance to the merchandise on  
display.



Individual reflectors of mirror  
glass on 60 inch centers and equipped  
with 35 watt Mazda lamps aid in  
the an appealing display.

Through reflectors with mirror  
glass show cases large facilitate the  
inspection of the goods.



Reflecting glass panels in the top of  
this wall case illuminate the complete  
interior and attract attention to the  
merchandise on exhibit.

the window. A higher illumination from additional equipment, (lower illustration), practically eliminates all daytime reflections. Light colored backgrounds in windows will also help in reducing the daylight reflections. Several large New York Department Stores employ 500 watt lamps on 18" centers in their show windows. These practically eliminate daytime reflections and, being wired on two or more circuits, allow the use of from one half to one third of the installation for window lighting at night.

### Show Case Lighting

Show cases of both the counter and wall types are in reality miniature show windows and should be properly illuminated. The ineffectiveness of unlighted show case displays is illustrated at the top of page 84.

Show cases, as their name implies, are for showing and not storing merchandise. If sufficiently illuminated, careful inspection may be made of their contents without moving or handling the articles. Show cases require approximately four times the intensity of the general store illumination. The lighting equipment should be installed along the front upper edge of the case. It is not as a rule practicable to conceal show case reflectors with a valance as in show windows. Manufacturers have, however, so designed and constructed their equipment that it is small and inconspicuous.

Either the individual show case reflector or the trough type reflector may be satisfactorily employed. Individual reflectors are usually installed on 12 to 24 inch centers with 25 watt A-19 Mazda lamps. Where a relatively higher illumination is provided in the store itself or where dark goods are displayed, the 40 or 50 watt A-21 Mazda lamps should be used.

Trough type reflectors are usually installed with the 25 watt T-6 $\frac{1}{2}$  intermediate base or the 25 watt T-10 medium base Mazda lamps on 12, 18 or 24 inch centers. The 40 watt T-8 Mazda lamp should be used where a higher illumination is desired.

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An exception to the usual practice of installing lighting equipment as described above is in the illumination of displays of candy, wax ornaments, etc. Such merchandise is affected by the heat of inside lighting equipment and small decorative lamps of the portable type should be placed on top of the case.

#### Wall Case Lighting

Illumination in wall cases should be two or three times the intensity of the general store illumination. Such cases can be illuminated with small individual reflectors similar to the types used in show windows, employing 60 watt Mazda lamps on 24 inch centers for the usual installation. Another method which is suitable and less conspicuous is the use of lighting equipment over diffusing glass panels in the top of the case. These should be located near the front, be 12 inches deep and extend the entire length of the case. 60 watt A-21 Mazda lamps should be located on 18 to 24 inch centers and placed horizontally about 5 inches above the glass. To secure maximum utilization of light, lamps should be covered by metal or wooden housings finished in white on the inside.

#### Color Lighting

Color lighting is a valuable adjunct to the usual lighting of merchandise. It may be advantageously employed to enhance the appearance and increase the attraction of displays by adding depth and tone to the inherent colors of the merchandise in connection with which it is used. Color should, however, be used with discretion and with an understanding of color harmony.

Where color is properly used it need not be obvious. The result of its presence should create the feeling that the merchandise looks particularly attractive. To accomplish this, color screens or caps should be installed after the window is trimmed in order to accentuate the predominating colors of the materials on display. For example a window display of evening gowns may consist of garments of several different hues.

In addition to the usual practice of installing lighting equipment as described above, in the installation of displays of goods, the arrangement of lighting is affected by the position of the lighting equipment and small decorative lamps of the portable type should be placed on top of the cases.

### Wall Case Lighting

Illumination in wall cases should be two or three times the intensity of the general store illumination. Such cases are illuminated with small individual reflector lamps in the type used on show windows, suspending 30 watt units about 12 inch centers for the usual installation. Another method of lighting is suggested in Figure 10-1. It is the use of lighting equipment with diffusing glass panels in the top of the case. These should be placed near the top, as 12 inch or less and extend the entire length of the case. 30 watt units should be placed on 12 inch centers and should be installed about 2 inches above the glass. To secure uniform illumination of light lamps should be covered by metal or wooden shades, painted in white on the inside.

### Table Lighting

Table lighting is a valuable adjunct to the usual lighting of merchandise. It may be advantageously employed to enhance the appearance and increase the attraction of displays by adding depth and color to the inherent colors of the merchandise in comparison with which it is used. Color should, however, be used with discrimination and with an understanding of color harmony.

Where color is properly used it need not be obvious. The result of the presence should create the feeling that the presentation is particularly attractive. To accomplish this, color harmony as well as should be installed after the color is chosen in order to coordinate the presentation color of the materials on display. For example, a window display of evening gowns and coats of various colors should

In order that each may appear to its best advantage the window should be flooded with clear light and then color similar to the merchandise itself directed on the principle displays. Where there is one predominating color, as in displays of pink lingerie, or blue shirts, a slight touch of red light in the former, and blue light in the latter instance, will give a richer, more appealing appearance to the merchandise.

There is a surprising difference in the appearance of a display under clear or unmodified light as compared with one of similar character under light to which a touch of color has been added. Sometimes color devices on one or two of the existing window units will be sufficient to obtain effective results. All standard show window reflectors may be equipped with color producing media. Some are furnished with attachments for gelatin or glass screens fastened to the rim on the bottom of the reflector; others secure color by means of glass caps or hoods which are attached to the lamp bulb.

Care must be taken when planning a color lighting scheme, to provide enough wattage to offset the absorption of colored media. Sufficient wiring capacity should be installed to permit the use of the next larger size of lamp than that recommended in the table on page 81.

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QUESTIONS

1. What are the fundamental lighting principles to be observed in planning the lighting of a show window?
2. Why are higher wattages required for show windows located on main streets than for those situated on side streets?
3. What should color lighting accomplish in a show window and how should it be provided?
4. When should show windows be illuminated during the day?
5. What is the advantage of lighting show cases?

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### QUESTIONS

1. What are the fundamental lighting principles to be observed in planning the lighting of a store window?
2. What are the various entrance lighting fixtures for store windows located on main streets and for those situated on side streets?
3. What should color lighting amount to in a store window and how should it be provided?
4. When should and when should be illuminated during the day?
5. What is the advantage of lighting store windows?

### ANSWERS

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